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SUCCESSFUL
FARMING
ON EIGHTY-
ACRE FARMS
IN CENTRAL
INDIANA



THIS BULLETIN is primarily a story of the organization and management of successful 80-acre farms in central Indiana and adjacent areas which are following the type of farming that prevails in that part of the country.

Corn, oats or wheat, and clover or clover and timothy are the principal crops in this area. The small grains are mostly sold from the farms as cash crops, and the corn and clover (both hay and pasture) are fed to hogs, cattle, work animals, and poultry, hogs getting much the largest share.

Some of the leading principles of good farm organization and management on 80-acre farms are illustrated by the facts brought out regarding what the successful farmers on 80-acre farms have accomplished, not in a single year but over a series of years.

The bulletin sets before the 80-acre farmers who are following the prevailing type of farming standards which some farmers have reached and which are believed to be within the reach of a great many other 80-acre farmers in central Indiana and adjacent areas.

While it is recognized that farms larger than 80 acres offer greater opportunities for profits to capable managers, the fact that 80-acre farms are so numerous in this area is the reason for considering them by themselves in this publication. Data are available in the Department of Agriculture for discussions of the organization and management of 120-acre farms, 160-acre farms, and 240-acre farms.

SUCCESSFUL FARMING ON EIGHTY-ACRE FARMS IN CENTRAL INDIANA.

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WHAT ARE the opportunities for success on 80-acre farms in central Indiana?

What cropping systems are most profitable?

What is the best arrangement of fields?

What crop yields are favorable for good profits?

What kinds of livestock and how much of each are most desirable on farms of this size?

What production should be expected from the various kinds of livestock?

What machinery and equipment is economical for the efficient operation of 80-acre farms?

These are some of the questions discussed in this bulletin.

Within the portion of Indiana to which this bulletin particularly applies (fig. 1) there are approximately 98,000 farms. Of this number about 31,000, or almost one-third of the total, are between 50 and 99 acres in size, and about 20,000 of these are approximately 80 acres in size. The success in securing reasonable returns for the labor and capital on each of these farms depends largely on how the operator answers the above questions.

INCOMES MADE ON 80-ACRE FARMS.

Since 1910, Purdue University and the United States Department of Agriculture have obtained business records showing the farm profits under the various systems of management from over 1,700 farmers in central Indiana. About 340 of these records were from approximately 80-acre farms. In general, these records show that on an average, over a period of years, operators of 80-acre farms make about a mortgage rate of interest on their capital and somewhere near a hired man's wages for their labor, in addition to securing the products furnished by the farm for the family living and a

¹ This study was made in cooperation with the Extension Service of Purdue University.

possible increase in value of the farm land owned. Figures from twenty 80-acre farms in Clinton County for eight years given in Table 1 are representative of the region.

Receipts are the value of all the products sold from the farm, plus any increased value of livestock due to growth or increase in numbers



FIG. 1.—The shaded portion of the map shows the part of Indiana to which the discussion in this bulletin particularly applies.

and plus the value of any increased quantity of feed at the end of the year over the beginning of the year.

The farm income is the receipts less the expenses (the expenses including all costs except any charges for the farmer's own labor and for interest on the capital), and represent the combined returns

TABLE 1.—Average receipts, income, and value of family living from twenty 80-acre farms in Clinton County, Ind.

Year.	Receipts.	Farm income.	Labor income.	Per cent on capital.	Value of family living furnished by farm.
1910.....	\$1,396	\$953	\$319	5.1	\$278
1913.....	1,423	954	171	4.1	257
1914.....	1,342	771	—20	2.8	222
1915.....	1,461	850	50	3.4	236
1916.....	1,981	1,377	588	6.7	290
1917.....	2,238	1,342	514	5.9	355
1918.....	2,808	1,817	867	7.2	445
1919.....	2,638	1,539	564	4.8	441
Average for eight years.....	1,911	1,200	382	5.0	316
Average of the four most successful farms.....	2,527	1,566	622	6.2	350
Average of the four least successful farms.....	1,368	663	—62	2.0	303
Average of the most successful farm.....	3,097	1,722	757	6.9	331
Average of the least successful farm.....	774	196	336	— .6	303

for the use of the capital and the farmer's labor, exclusive of the family living furnished by the farm.

The labor income is the farm income less 5 per cent interest on the capital. It represents the pay the farmer gets for his year's labor, exclusive of any of the family living furnished by the farm.

The per cent on capital is the farm income less the value of the farmer's own labor and expressed as per cent of the capital. It represents the returns to capital after allowing the farmer's estimate of the value of his own labor.

The family living furnished by the farm, varying in value at farm prices in different years from \$222 to \$445, represents the meat, milk, eggs, fruit, vegetables, etc., set aside from the farm production for family use and the fuel and house rent furnished by the farm. The importance of these items of family living from the farm is often overlooked by farmers when figuring how much their farms have returned them.

VARIATION IN INCOMES ON 80-ACRE FARMS.

While the average 80-acre farmer receives a moderate return for his capital and labor, there is a wide variation in the profits made by different farmers. As an example, the most successful 80-acre farmer in the Clinton County group for which figures were presented in Table 1 received an average farm income of \$1,722 per year for eight years as compared to \$196 per year received by the least successful of the 80-acre farmers.

A comparison of the four most successful 80-acre farms with the four least successful 80-acre farms in a community shows some of the reasons for the greater success of some farmers than of others. The discussion following is based upon the results from all of the 80-acre farms in central Indiana from which records have been secured, and is frequently illustrated with facts from the four most successful and the four least successful of the 80-acre farms in the Clinton County area.

THE CROPPING SYSTEMS.

A few acres on every 80-acre farm are taken up with woods, lanes, building sites, lots, gardens, etc. From 4 to 10 acres, on at least three out of every four farms originally covered with timber, are in woods pasture, and on most farms, whether there is woods pasture or not, there are a few acres in permanent pasture, alfalfa, or some other crop, grown outside of the regular rotation land. The rotation land, therefore, seldom exceeds 70 acres, is usually from 60 to 70 acres, and sometimes less than 60 acres.

The outstanding cropping system on the 80-acre farms in this area is built around a three-year rotation of corn, small grain, and clover with timothy. Other less common systems are—a four-year rotation of corn, corn, small grain, and clover with timothy; a four-year rotation of corn, small grain, small grain, and clover with timothy; a four-year rotation of corn, small grain, clover with timothy, and clover with timothy; and a five-year rotation of corn, corn, soybeans, wheat, and clover with timothy.

Successful farmers want all the land in corn that they can well care for and still have a good cropping system from the standpoints of the efficient use of labor, of crop rotation, and of the productivity of the land. For example, the four most successful farms already referred to averaged 27 acres in corn, 18 acres in small grain, and 20 acres in clover with timothy, or 27 acres in corn out of a total rotation area of 65 acres.

TABLE 2.—*Acres in crops on four of the most successful 80-acre farms in Clinton County—eight-year average.*

	Corn.	Small grain.	Clover with timothy.	Total rotation.
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>
Farm 1.....	36	14	19	69
Farm 2.....	21	19	19	62
Farm 3.....	26	23	20	69
Farm 4.....	23	18	21	62

If the 3-year rotation system (see fig. 2) were followed to the letter, most of the 80-acre farmers would have from 20 to 23 acres in each crop each year, or less than they want in corn, and less than they usually have. More corn than is afforded by the strictly 3-year rotation plan is often secured through modifications of this plan, the more common of which are:

(a) Some farmers with the 3-year rotation have a field of from 5 to 10 acres, aside from the rotation land, on which corn is grown continuously and "hogged off." These farmers think that under this treatment the land becomes better each year. In recent years soybeans are often planted with corn. This is to be commended for all the land in corn whether or not the corn be "hogged off."

(b) Clover and timothy seedings sometimes fail. When the seeding fails, the land is sometimes put in corn, and the intended 3-year rotation of corn, small grain, and clover with timothy is lengthened temporarily into a 5-year rotation of corn, small grain, corn, small grain, and clover with timothy. This practice is favored

First Year-Corn



*Second Year-Wheat
Oats or Rye*



*Third Year-Clover
or Clover and Timothy*



FIG. 2.—The usual cropping system on 80-acre farms in central Indiana.

only as an emergency practice. These somewhat common clover failures are further reaching in their effect than the direct loss of the seed. They break up the cropping system and interfere with the livestock organization of the business. The farmer is face to face with the questions: What shall I do with the land? How shall I handle my stock? Wise decisions relating to these questions are important to successful management.

With the four-year rotation of corn, corn, small grain, and clover with timothy (fig. 3), practiced by a few 80-acre farmers, there is more corn than in any other of the rotation systems. With less land in rotation pasture than in the three-year system, this system requires a little more land in permanent pasture, if enough livestock is kept to consume all the corn. Objections to this four-year rotation are made on the grounds that two years in corn are too hard on the land. It is favored by those practicing it on the ground that two years in corn after a good clover sod and on strong land do not reduce yields, surely not when the corn is "hogged off" one of the years, and when the stalks are plowed under and not burned.

A five-year rotation of corn, corn, soybeans, wheat, and clover with timothy (fig. 4) is a cropping system which is practiced by an occasional farmer within this area. It is favored on the ground that it closely approximates the principles underlying a good cropping system. With this system two-fifths of the rotation land is in corn each year, affording more corn than the three-year rotation; the land is in leguminous crops two years in five, which favors both soil fertility and the feeding ration, and the problem of clover failures is lessened, only one-fifth of the land being seeded to clover each year, against one-third of the land in the three-year rotation. The soybeans may be harvested either for hay or for grain. The grain may be sold as seed or used for feed. Their use for feed gives a better ration than if corn alone is fed; or, if protein feeds are used, it lessens the expense for such feeds. This system requires a little more land in permanent pasture than the three-year rotation system.

Cropping systems with only one-fourth of the rotation land in corn are practiced by a few 80-acre farmers. These systems are objected to on the ground that they do not afford enough land in corn (only from 15 to 17 acres on most farms) for the efficient use of man labor and horse labor, or for feed for the amount of livestock kept on most of the more successful 80-acre farms.

CROP YIELDS.

Much the same cropping systems, that is, the same crops and the same acreages of each, prevailed on the least successful farms as on the most successful farms, but the higher yields per acre on the most successful farms gave them considerably larger total crop production.

While high crop yields are not absolutely essential to successful farming, yet practically all of the more successful farms have yields above the average of the community. But the mere fact that a farm has yields above the average does not guarantee its success, for numerous instances are on record of farms with yields above the average which were unsuccessful because the crops were not efficiently marketed through livestock.

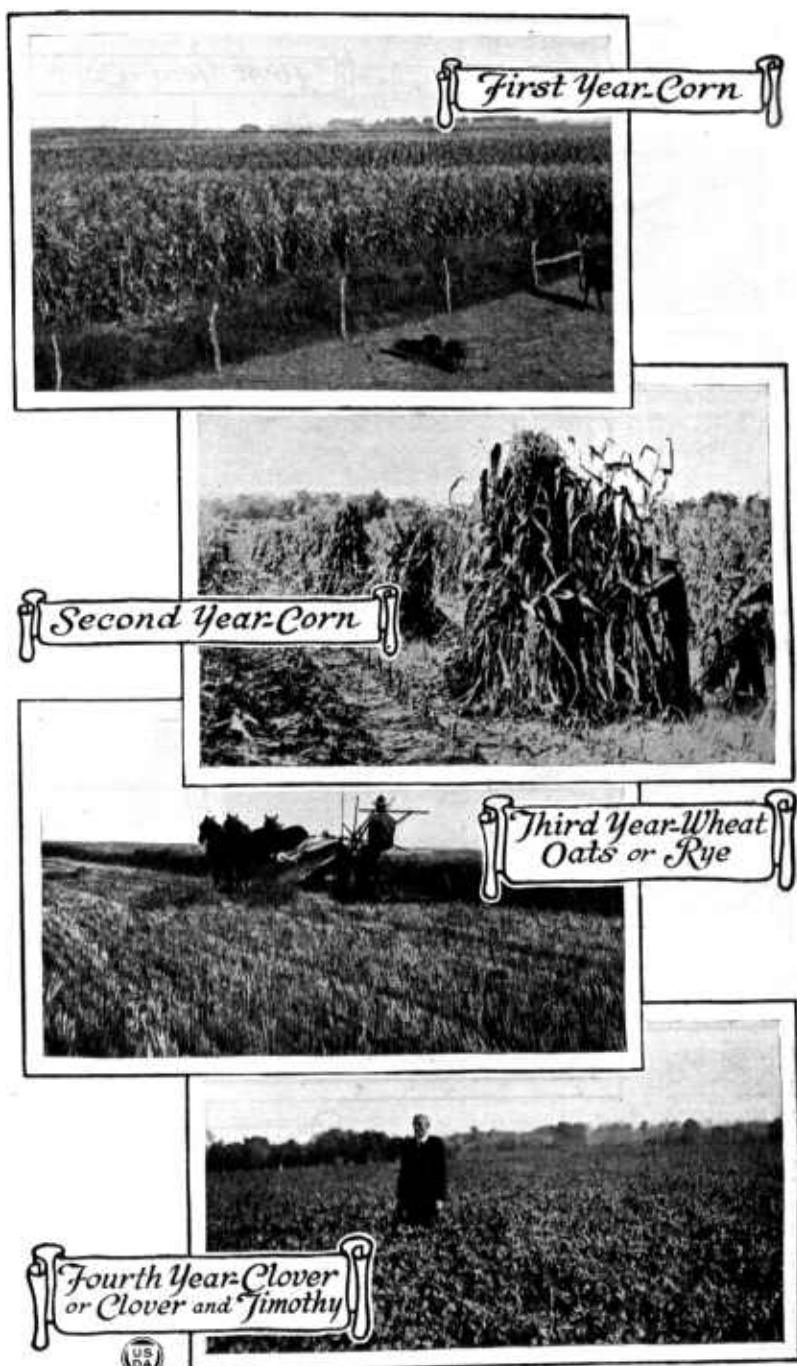


FIG. 3.—The cropping system on a few 80-acre farms in central Indiana.

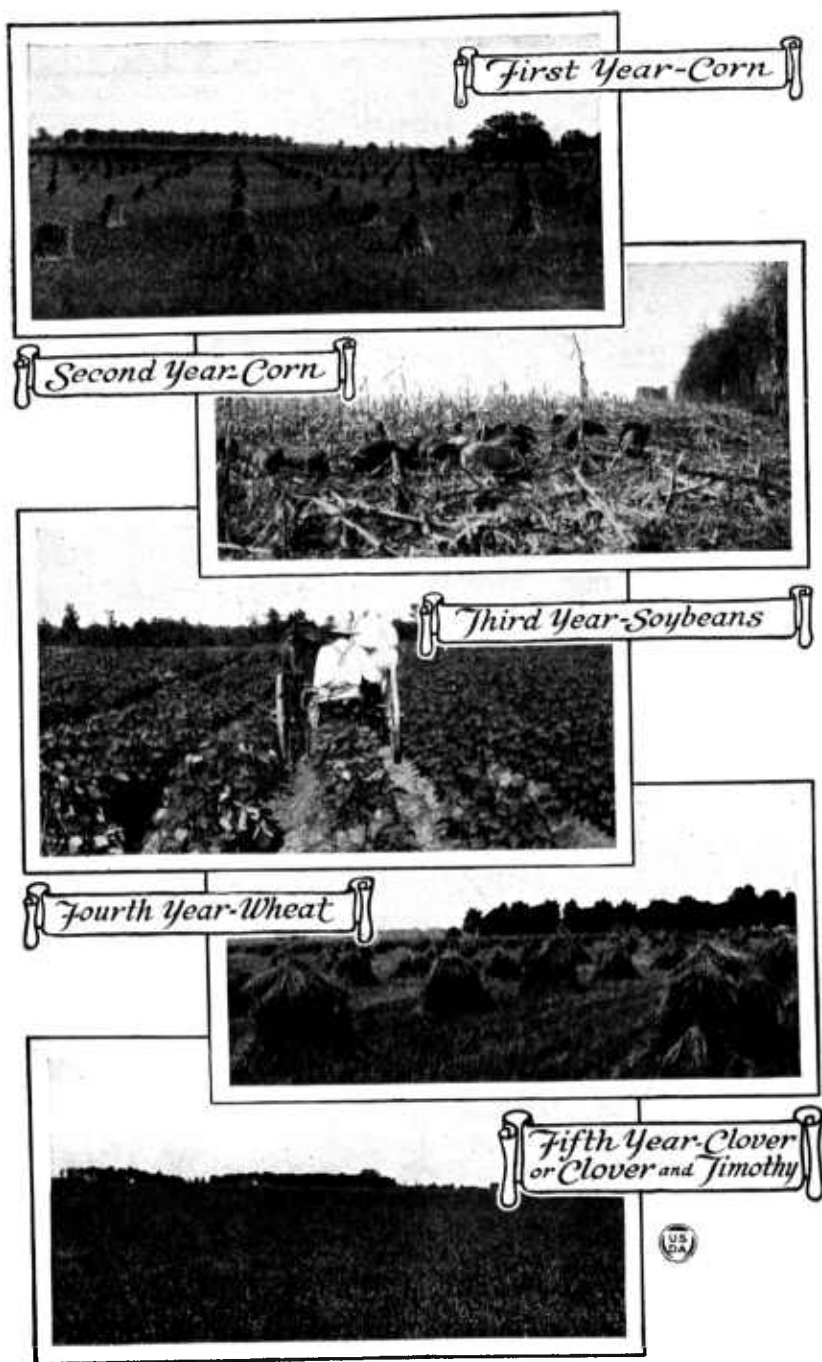


FIG. 4.—The cropping system on an occasional 80-acre farm in central Indiana.

TABLE 3.—Yields per acre on four of the most successful and four of the least successful 80-acre farms in Clinton County—eight-year average.

	Corn.	Oats.	Wheat.	Hay.
	Bushels.	Bushels.	Bushels.	Tons.
Farm 1.....	45	43	20	1.6
Farm 2.....	50	45	18	1.4
Farm 3.....	49	46	20	1.4
Farm 4.....	49	45	1.3
Average of the four most successful farms.....	48	45	19	1.4
Farm 5.....	42	34	(1)	1.1
Farm 6.....	36	34	(1)	1.4
Farm 7.....	46	39	(1)	1.3
Farm 8.....	39	40	(1)	.7
Average of the four least successful farms ¹	41	37	(1)	1.1

¹ The fact that wheat was not raised on any of the four least successful farms had no appreciable bearing upon their incomes. Of the most successful farms which were raising wheat one had wheat two years; another three years; and the other four years of the eight. Oats or wheat, at the option of the farmers, was grown the one year between corn and clover. Growing small grains on the same land for two successive years was quite uncommon.

FARM LAYOUTS.

Many 80-acre farms, particularly in regions originally covered with forests, are fenced into fields in such a way that the uniform crop rotation most desirable can not be followed. Inconvenient farm layout is nearly as great a cause of variation in acres of the

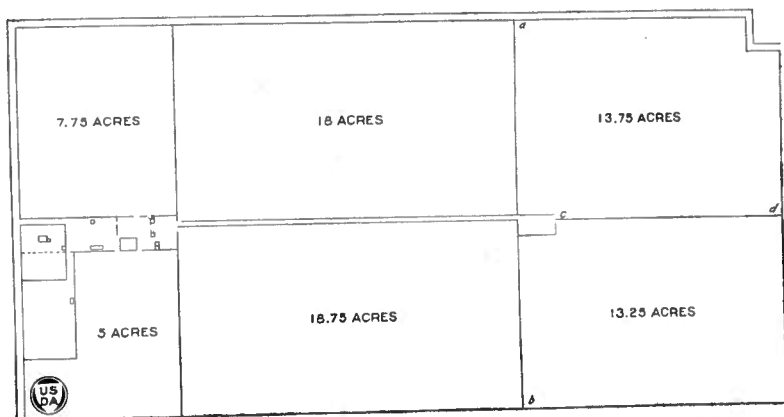


FIG. 5.—Layout of an 80-acre farm in Clinton County. This is one of the most successful farms, but the operator recognizes the handicap he is working under in trying to follow a 3-year rotation on the four large fields. The two fields near the buildings are being used for alfalfa and permanent pasture. The simple change shown in Fig. 6 appealed to the farmer as the solution of his problem of rearrangement to obtain a better layout for a 3-year rotation.

different crops from year to year as is clover failure. The only layout that will permit the ordinary three-year rotation to be practiced is one in which the crop land is divided into three fields of nearly equal size, or one in which various smaller fields can be grouped in such a way that there is about an equal area available for each of the three crops in the rotation. Similarly a four-year rotation should have four fields of nearly equal size and a five-year rotation five fields.

Fields of large size, rectangular in shape, and from one and one-half to three times as long as wide are most economical from the

standpoints of fencing costs and convenience in operating. Laying out the farm in such a way that fields corner as near as possible to the farm buildings saves labor in going to and from fields, reduces the amount of lanes necessary and facilitates the care of livestock.

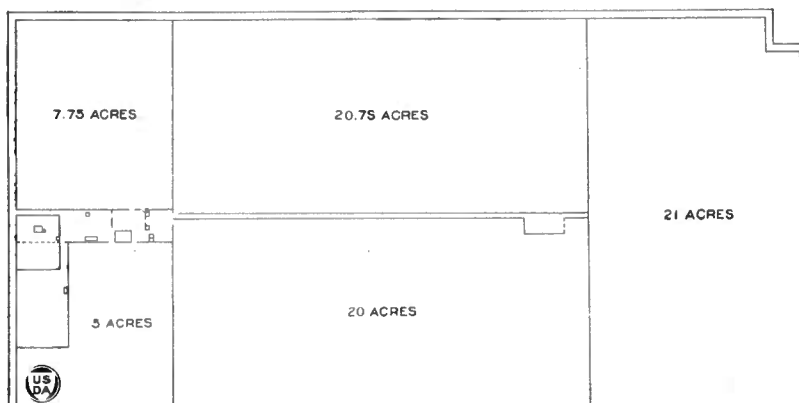


FIG. 6.—The same farm as shown in fig. 5 with improved layout. By moving the cross fence (a, b, in fig. 5) 13 rods toward the rear end of the farm and removing another fence (c, d, in fig. 5), three fields of nearly equal size are provided and 43 rods less fence are required. This arrangement will require only 418 rods of interior fence, which is less than is found on most 80-acre farms.

Some farmers are eliminating lanes by maintaining a permanent pasture field between the farm buildings and the more distant fields.

The large number of hogs and other livestock on farms in central Indiana usually makes it advisable to maintain permanent fences between the various established fields. Differences in field arrange-

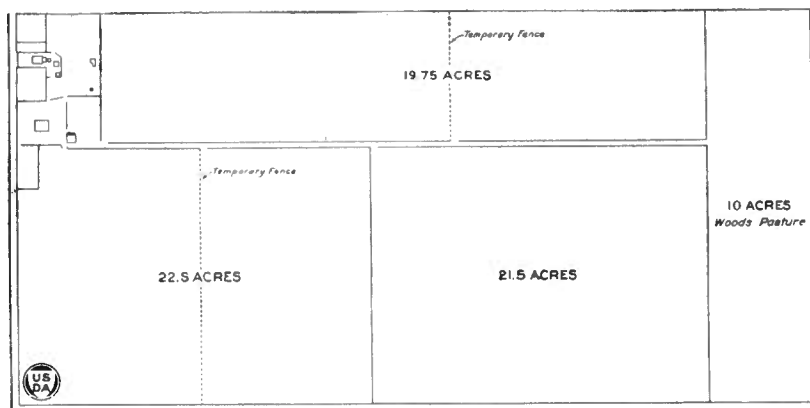


FIG. 7.—A good layout on an 80-acre farm. Unfortunately the uncleared woodland is at the opposite end of the farm from the buildings. This is typical on 80-acre farms in central Indiana. This farm has three large fields of nearly equal size, permitting a 3-year rotation of corn, wheat, and clover. A temporary fence is stretched each year across the field which is in clover, so that part of it may be pastured and part cut for hay. A temporary fence is also stretched across the field in corn when part of it is "hogged off."

ment on various 80-acre farms frequently result in a variation in the amount of inside fence required of from 425 rods to over 700 rods.

The accompanying layouts on several different farms (see figs. 5 to 11) bring out some of the important facts to consider in the division of an 80-acre farm into fields for most efficient management.

WHAT LIVESTOCK IS DESIRABLE.

The 80-acre farm in central Indiana that is profitable over a period of years usually has enough livestock of good quality to consume all the corn grown on it and often some purchased corn. The four most successful farms from which records were obtained for eight years in Clinton County had 54 per cent more livestock than the four least successful farms. In most cases hogs are the most important class of livestock on the 80-acre farms. There are opportunities for making dairying or poultry raising a larger part of the farm business than is common in this area, and a few men are making good profits from dairy cows and chickens, but the better-paying farms obtain the largest livestock receipts from hogs. A good combination of livestock, such as was found on the most successful Clinton County farms

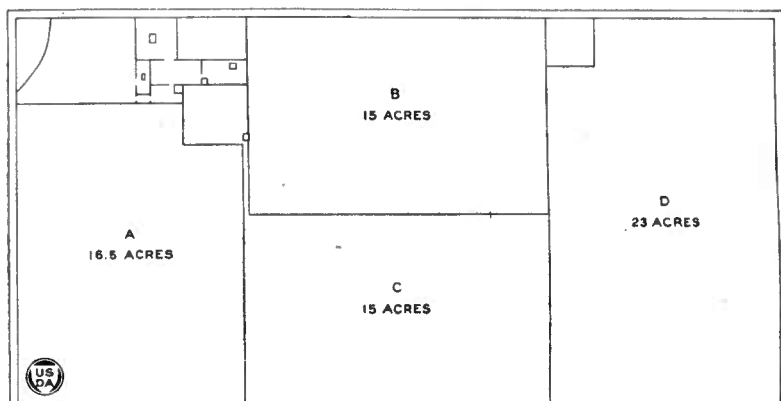


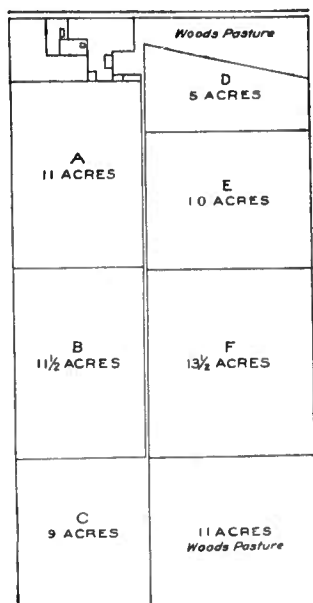
FIG. 8.—Field arrangement on a successful 80-acre farm in Clinton County. On this 80-acre farm a 3-year rotation is followed on fields A, B, and C, and field D, on which the same rotation is practiced, is divided into three parts—without interior fencing. The bigger clover field is pastured and the one-third of field D, which is in clover, is cut for hay. The parts of field D which were in corn have been “hogged off” for several years.

(fig. 12) is 3 to 5 dairy cows, with enough young cattle to maintain the herd; 5 to 8 brood sows, from which 50 to 70 pigs are raised each year; 100 or more hens, and the necessary work animals. A few ewes are found on some farms.

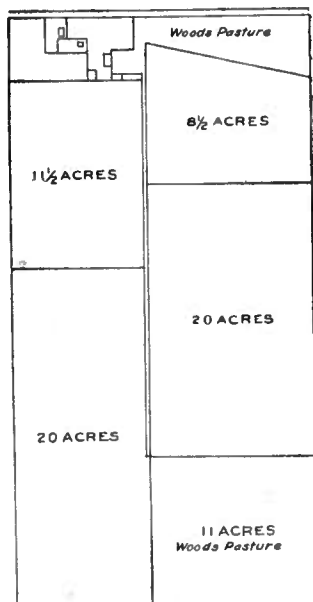
On one of the four most successful of the 80-acre farms all the corn that was raised and over 500 bushels of purchased corn were fed each year, and on another of these farms over 200 bushels of corn were purchased each year. On an average the four most successful farms had enough livestock to consume over 1,300 bushels of corn each year as compared to less than 900 bushels on the four least successful.

LIVESTOCK PRODUCTION IMPORTANT.

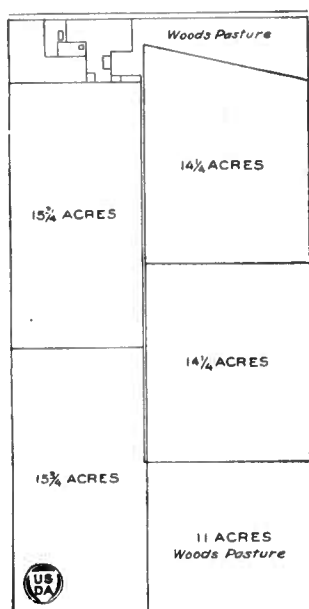
Farm records indicate that differences in the returns from livestock cause greater variations in farm incomes than any other item. The successful farmers have a good quality of livestock, feed better rations, and give better care than the unsuccessful farmers. In the Clinton County area the most successful 80-acre farmers raised an average of 9.3 pigs per sow each year as compared to 6 pigs (two litters) per sow by the least successful farmers. In the case of other livestock, there



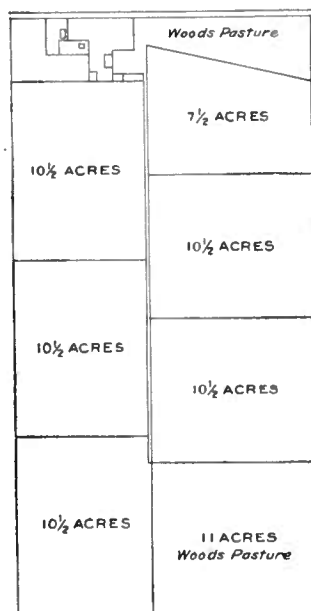
As it is now



Rearranged for three-year rotation

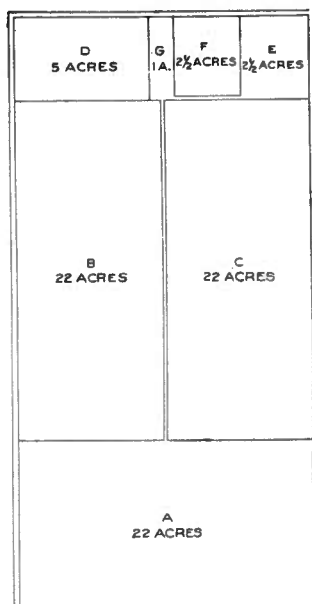


Rearranged for four-year rotation

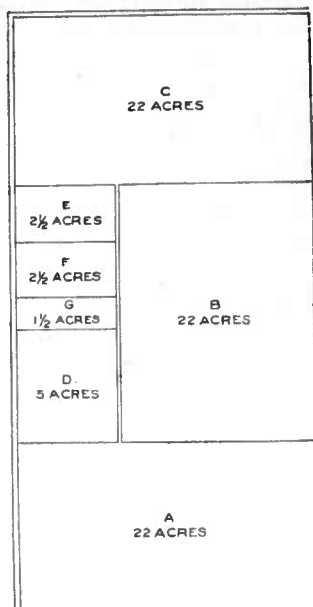


Rearranged for five-year rotation

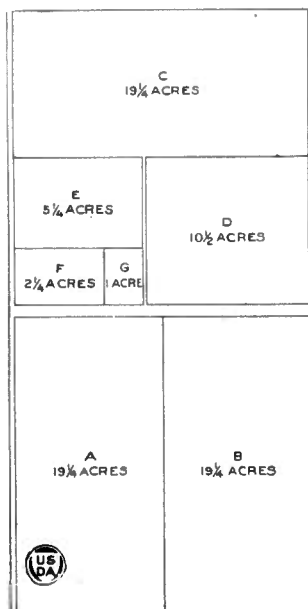
FIG. 9.—An 80-acre farm as it is, and with improved layouts for 3, 4, and 5 year rotations. This very successful farm used a 3-year rotation. By combining fields D and F, fields B and C, and fields A and E, $18\frac{1}{2}$, $20\frac{1}{2}$, and 21 acres were used for the three crops. This layout required 610 rods of fence. The three other plans show how this farm might be more conveniently arranged for 3, 4, and 5 year rotations. When rearranged for a 3-year rotation, the $8\frac{1}{2}$ -acre and the $11\frac{1}{2}$ -acre fields are considered as one field in the rotation, and when rearranged for the 5-year rotation the $7\frac{1}{2}$ -acre field is to be used for crops outside of the rotation. In the 3 and 4 year plans 79 rods of fence are saved over the original plan.



With buildings at end



With buildings along side



With road through farm

A, B, C, Rotation fields.

D, E, Fields, either or both of which may be used for permanent pasture, for alfalfa, for silage, or for corn to "hog off." By dividing field D, a three-year rotation may be run on these fields.

F For garden, orchard and poultry yard.

G For buildings and lots.

FIG. 10.—Suggestive layouts for a 3-year rotation on 80-acre farms. It may be impracticable on many farms on account of ditches, streams, woodlands or other conditions to have fields of the exact size and shape suggested in these layouts, but on most farms some changes can be made that will make the field arrangement approximate the ideals illustrated in this figure.

were similar differences in the production of young stock. On the four most successful farms one calf was raised every 12 months for each cow as compared to one calf every 15 months for each cow on the four least successful farms. In proportion to the number of hens kept, twice as many chickens were raised to sell or replace the flock on the four most successful farms as on the four least successful farms.

The cows on the four most successful farms averaged 172 pounds of butterfat per cow, as compared to 82 pounds on the four least successful farms. The production, even on the most successful farms, was low for dairy cows, but some of these cows were of the beef or dual-purpose type. Egg production per hen in the former group of farms was 53 per cent higher than in the latter group.

Most home-raised feeds are low in protein, and best results are secured when supplements such as tankage for hogs and chickens and cottonseed meal or oil meal for cattle are used to balance the feed ration. The four most successful farmers purchased an average of

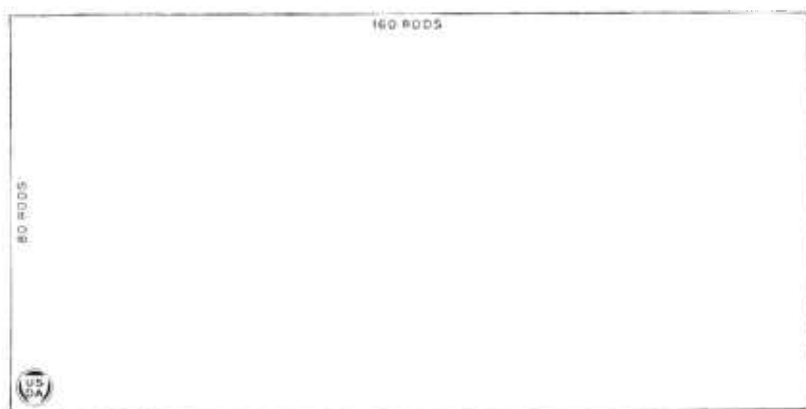


FIG. 11.—Map the layout of your own 80-acre farm. Can you improve on your present layout?

three-fourths of a ton of protein supplement per year as compared to one-third of a ton by the four least successful farmers. Many of the farmers are now utilizing soybeans as a source of home-grown protein to help balance the cattle and hog rations. Soybeans are a good substitute for linseed-oil meal or cottonseed meal for cattle or for tankage for hogs when supplemented with a mineral mixture made of 10 parts of wood ashes or finely pulverized limestone, 10 parts 16 per cent acid phosphate, and 1 part common salt. One hundred and seventy pounds of this mixture plus 2,400 pounds of soybeans will equal 1 ton of tankage.

The four most successful 80-acre farmers averaged \$28 expense per year for hog vaccination, while one of the least successful farmers spent \$7 per year and the other three spent nothing. The four most successful farmers averaged less than 1 hog lost per year and the least successful farmers 5 hogs per year. One of the least successful farmers lost 38 hogs from cholera in a single year. The differences in hog losses much more than paid the cost of vaccination.

On the two of the four most successful Clinton County farms from which the largest number of eggs were sold, the poultry housing conditions were far above the ordinary. A large production of winter

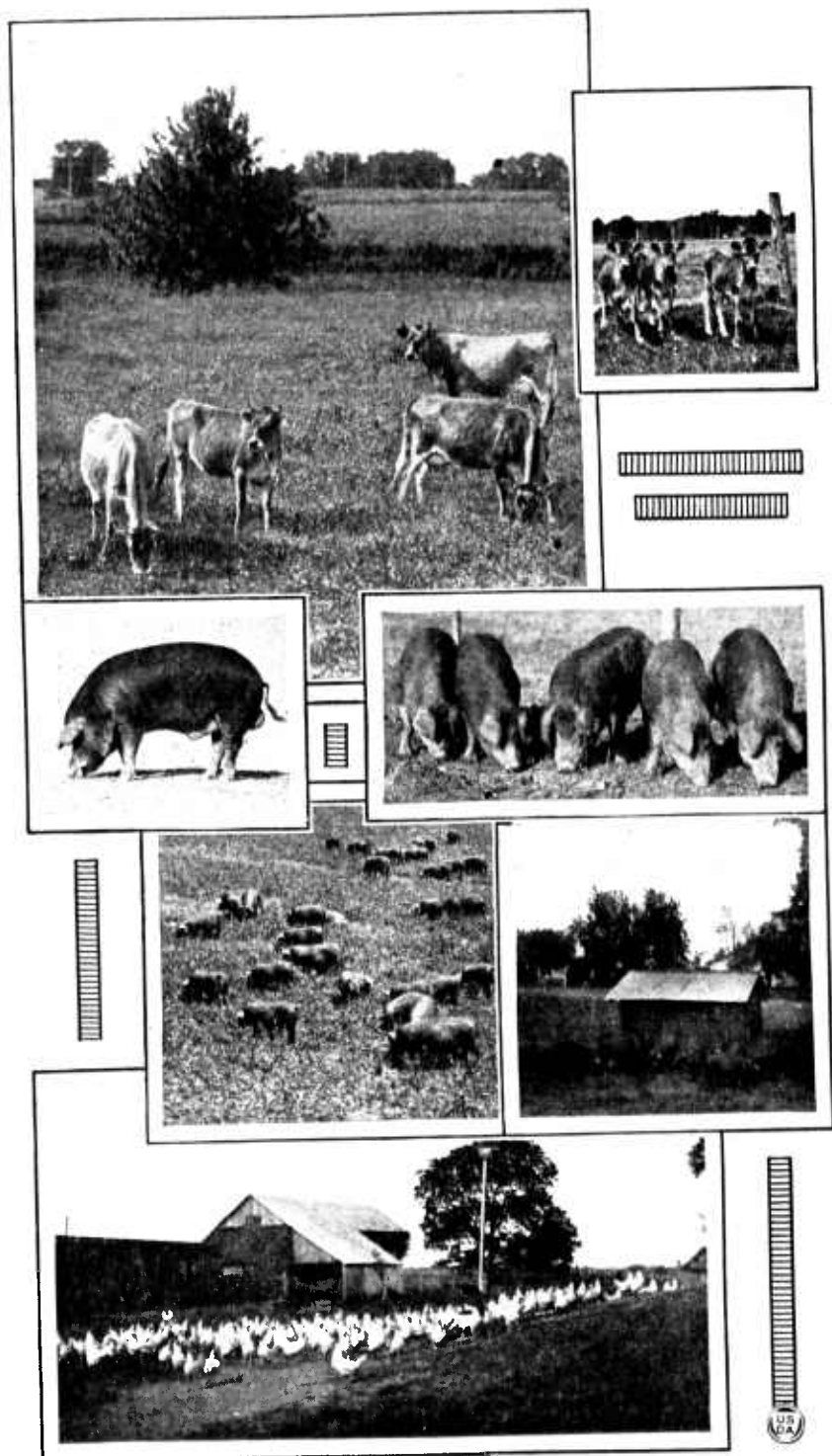


FIG. 12.—The combination of livestock prevalent on many of the more successful 80-acre farms.

eggs requires a poultry house that is dry, roomy, well-ventilated without being drafty, and adequately lighted (fig. 14).

LABOR.

With the type of farming prevailing in this area, the farmer with the aid of his family or a little hired labor, performs all the labor on the 80-acre farm. Members of the family often help with the chores, and during rush periods the farmers often hire some extra labor. In all, the labor in addition to the farmer's own labor, usually amounts to from two to four months. On at least half of the 80-acre farms this is performed by members of the farmer's family, and no hired labor is required.



FIG. 13.—Individual hog houses are more satisfactory than the centralized hog house on 80-acre farms.

Using labor advantageously is important to successful farming. There are instances of one man tending as low as 10 to 15 acres of corn, on an 80-acre farm, and others of one man tending as high as 25 to 30 acres (fig. 15). Much more livestock is cared for per man on some farms than on others. There is a tendency among the better 80-acre farmers to reach out just a little farther and farm more land with the labor which is used on the 80 acres, sometimes without any additional capital in work animals or machinery. When the 80-acre farm is already well-equipped, instances of farmers going out of the 80-acre class and farming from 10 to 40 acres of additional land are not uncommon. Sometimes this additional land has been bought and sometimes rented.

WORK ANIMALS.

From three to four work animals are kept on most of the 80-acre farms, three prevailing on the more successful farms and four on the less successful ones (Fig. 16).

Four horses are needed for certain operations with certain types of machinery, such as the use of a double-disk harrow, but most of the more successful farmers agree that they are not justified in keeping more than three 1,400 to 1,500 pound horses, unless some of them are brood mares or there is team work off the farm.

EQUIPMENT.

While the most successful farms are equipped with better machinery and of a higher type than the least successful ones, they are not over-equipped and have less machinery than a great many other 80-acre farms. In fact, the judgment of the most successful farmers is that many 80-acre farms are overequipped, that the capital in machinery is too high for its economical use. The machinery equipment for an 80-acre farm requires careful consideration, and the following list has been prepared for 80-acre farms, after considering the machinery

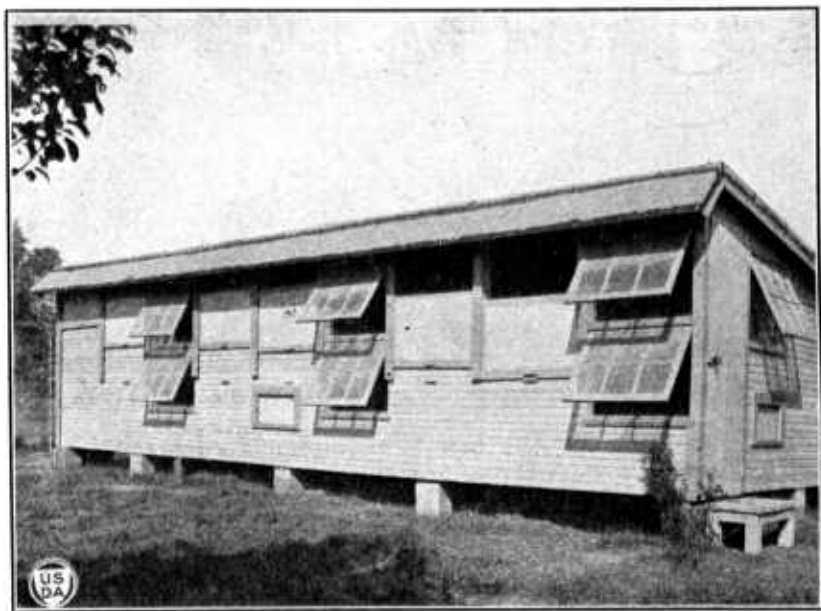


FIG. 14.—The poultry house recommended by Purdue University for farms in this area. The building may be 16 by 24 feet, or 20 by 20 feet and is large enough for 100 hens. The poultry department of the university favors the 20 by 20 feet house on farms where there is apt to be an extension in the poultry business. Construction plans for poultry houses are available through the Extension Service of Purdue University. (Photo by Poultry Department, Purdue University.)

actually owned on forty 80-acre farms and interviewing several of the more successful 80-acre farmers in Clinton County:

Machinery for an 80-acre farm in central Indiana.

Wagon.
Walking plow, 14-inch.
Sulky plow, 14-inch.
Disk harrow, 7-foot.
Spike-tooth harrow, 2 sections (10 feet).
Packer (double), 8-foot.
Corn planter, with fertilizer and soy-bean attachment.
Corn cultivator, 1-row or 2-row.
Grain binder, 6-foot to 8-foot.
Grain drill, 1, 2, or 3 horse, with fertilizer attachment.

Mower, 5-foot.
Hay rake, 10-foot.
Gas engine, for pumping water, etc.
Corn sheller, hand.
One-horse cultivator.
Incubator.
Cream separator, 375 pounds per hour for 2 to 5 cows.
Manure spreader, 50-bushel.
Work harness, for 3 horses.
Miscellaneous small tools.

In connection with this list it should be stated that some farmers are using such items of equipment as mowers, rakes, corn binders,

and silage cutters jointly with neighbors. The machines are owned jointly, or one farmer owns one machine and another farmer owns



FIG. 15.—A labor-saving practice, which has become popular on 80-acre farms. It's fun for the hogs and favors soil fertility.

another, thus reducing the capital requirement, depreciation, and repair expense for each farm. Arrangements of this sort are eco-

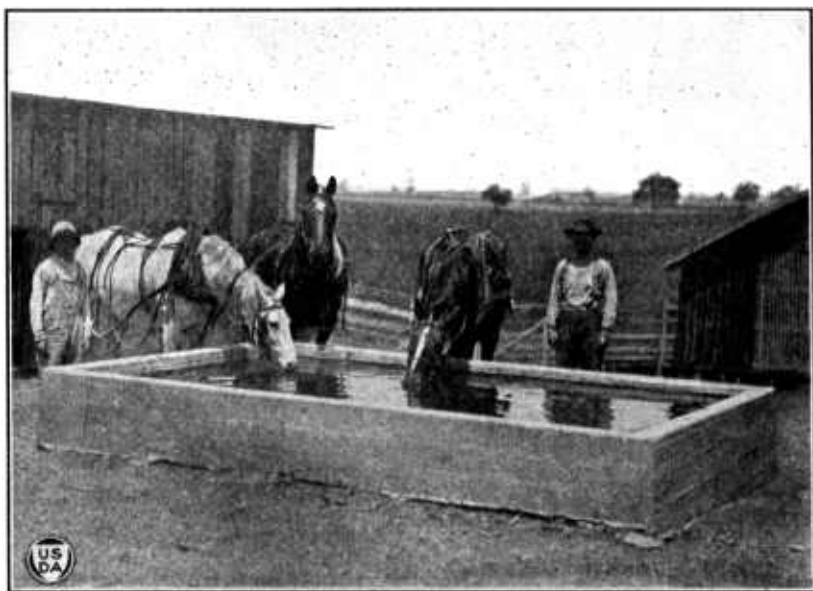


FIG. 16.—The work animals for an 80-acre farm.

nomical when the machines can be used on more than one farm without loss to the crops on any of the farms. Some 80-acre farmers

have occasionally bought second-hand machinery at low prices which they would not have been justified in buying new.

Successful 80-acre farmers as a rule have an automobile which has sometimes replaced a horse, buggy, and driving harness. It often counts for greater efficiency of the farm operation and adds to the pleasure of the farmer and his family.

FAMILY LIVING ON 80-ACRE FARMS.

The value of the products furnished by the farm for family living is greater than is generally recognized. On the four most successful 80-acre farms in Clinton County from which records are available the farms contributed approximately the following amounts of products: Four hogs for meat, 50 chickens, 75 dozen eggs, dairy products to the equivalent of 100 pounds of butterfat, an acre of garden and fruit, 3 cords of wood, and a family dwelling house.

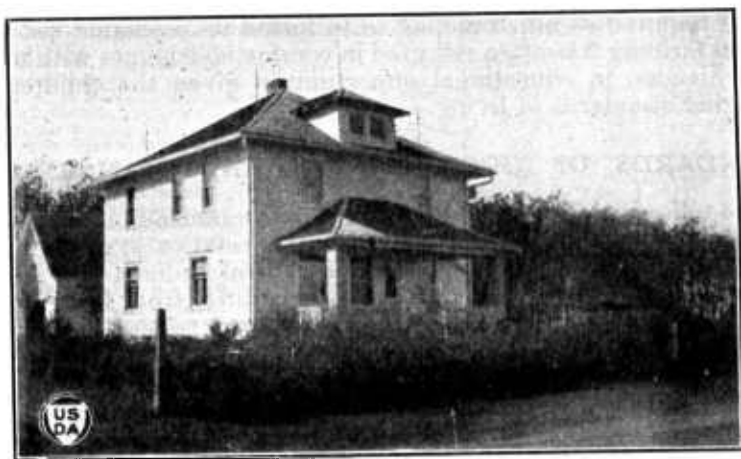


FIG. 17.—A modern home on a successful 80-acre farm. This home has electricity, furnace heat, hot and cold water, bath, and sewerage system.

On some of the more successful 80-acre farms in central Indiana there are comfortable houses with modern conveniences, including electric lights, running water, bathrooms, and furnaces (fig. 17). Some of the houses with electricity or other power use it for separating cream and making butter, for laundry work, or for housecleaning. It is the opinion of the owners of these farms that the money expended for such improvements has been a wise investment. Many of the more successful men from the financial standpoint are the most interested in those things that result in a higher standard of living in the farm homes. Their boys and girls are participating in club work and are being given educational opportunities at high schools and colleges.

SUMMARY.

A number of 80-acre farmers in central Indiana and similar adjacent areas "made good" over a series of years, while some of their 80-acre neighbors were receiving low returns from their land and labor. Opportunities for success come to those who maintain com-

paratively high standards of organization and management. In general, the more successful farmers had definite crop rotation systems of corn, small grain, and clover and timothy, with a tendency to put more land in corn whenever practicable. Over a series of years yields as high as 50 bushels of corn, 45 bushels of oats, 20 bushels of wheat, and 1.5 tons of hay per acre were obtained. From three to five dairy cows with enough young cattle to maintain the herd; from five to eight brood sows, raising from 50 to 70 pigs per year; 100 or more hens; and three work animals were common. With good breeding, feeding, and care profitable production per animal (as of butterfat per cow, pigs per sow, and eggs per hen) was obtained.

The farmers themselves did most of the work, with members of the family helping with the chores. During rush periods the family helped with the farm work, or some one was hired. In all, the members of the family or persons hired performed from two to four months of labor. The farmers had the machinery necessary for efficient operation of their farms, but they did not invest in machinery which required so much money as to forbid its economic use. Successful farming was often reflected in comfortable homes with modern conveniences, in educational opportunities given the children, and in higher standards of living.

STANDARDS OF ORGANIZATION AND MANAGEMENT.

The following table of standards in farm organization and management under three, four, and five year crop rotation systems is given for the guidance of 80-acre farmers in central Indiana and adjacent areas. It is fully realized that conditions differ from farm to farm, and that no two farms are exactly alike in every respect. The standards, therefore, should be interpreted as subject to modifications to meet the conditions existing on each farm. Some modifications have been discussed.

To farmers on 80-acre farms who maintain standards on as high a plane as those in Table 4 over a period of several years success is almost certain.

TABLE 4.—Standards of organization and management for successful farming on 80-acre farms under three, four, and five year crop rotation systems.

	Three-year cropping system.	Four-year cropping system.	Five-year cropping system.	Your own farm.
Land:				
Farmstead, roads, lanes, etc.....	7	7	7	
Permanent pasture.....	7	13	13	
Rotation land.....	66	60	60	
Corn.....	22	30	24	
Wheat.....	11	7.5	12	
Oats.....	11	7.5		
Soy beans.....			12	
Hay, clover, or mixed.....	7	7		
Rotation pasture.....	15	8	12	
Yields per acre:				
Corn.....	50	50	50	
Wheat.....	20	20	20	
Oats.....	45	45		
Soy-bean hay.....			1.75	
Soy-bean seed.....			15	
Hay, clover, or mixed.....	1.5	1.5		

TABLE 4.—Standards of organization and management for successful farming on 80-acre farms under three, four, and five year crop rotation systems—Continued.

		Three-year cropping system.	Four-year cropping system.	Five-year cropping system.	Your own farm.
Crop production:					
Corn.....	bushels	1, 100	1, 500	1, 200	-----
Wheat.....	do	220	150	240	-----
Oats.....	do	495	337		-----
Soy-bean hay.....	tons			10. 5	-----
Soy-bean seed.....	bushels			90	-----
Hay, clover, or mixed.....	tons	10. 5	10. 5		-----
Livestock:					
Work animals.....	head	3	3	3	-----
Cows.....	do	4	4	4	-----
Heifer, calf.....	do	1	1	1	-----
Heifer, yearling.....	do	1	1	1	-----
Boar.....	do	1	1	1	-----
Sows.....	do	5	7	6	-----
Hens.....	do	100	100	100	-----
Livestock production per animal:					
Cows, whole milk.....	pounds	6, 000	6, 000	6, 000	-----
Cows, butterfat.....	do	275	275	275	-----
Cows, calves.....	head	. 75	. 75	. 75	-----
Sows, pigs (from weaning to 225 pounds).....	do	9	9	9	-----
Hens, eggs.....	dozens	10	10	10	-----
Hens, chicks.....	head	1. 5	1. 5	1. 5	-----
Livestock production:					
Cows, whole milk.....	pounds	24, 000	24, 000	24, 000	-----
Cows, butterfat.....	do	1, 100	1, 100	1, 100	-----
Cows, calves.....	head	3	3	3	-----
Sows, pigs (from weaning to 225 pounds).....	do	45	63	54	-----
Hens, eggs.....	dozens	1, 000	1, 000	1, 000	-----
Hens, chicks.....	head	150	150	150	-----
Approximate feed requirements:					
Work animals (3 head)—					
Corn (43 hushels per head).....	bushels	129	129	129	-----
Oats (25 bushels per head).....	do	75	75	75	-----
Hay (1. 2 tons per head).....	tons	3. 6	3. 6	3. 6	-----
Cows (4 head)—					
Corn (20 bushels per head).....	bushels	80	80	80	-----
Oats (18 hushels per head).....	do	72	72	72	-----
Oilmeal (281 pounds, per head) or Soy beans (281 pounds per head).....	pounds	1, 125	1, 125	1, 125	-----
Hay (1. 5 tons per head).....	tons	6	6	6	-----
Calves and heifers (1 calf, 1 yearling heifer and 2 veal calves)—					
Corn.....	bushels	14	14	14	-----
Oats.....	do	12	12	12	-----
Oilmeal, cottonseed meal, or soy bean meal.....	pounds	185	185	185	-----
Whole milk.....	cwt.	8	8	8	-----
Skim milk.....	do	20	20	20	-----
Hay.....	tons	1. 5	1. 5	1. 5	-----
Sows and boar—					
Corn (25 bushels per head).....	bushels	150	200	175	-----
Tankage (100 pounds per head) or Soy beans (120 pounds per head) and Mineral mixture (8. 5 pounds per head).....	pounds	600	800	840	-----
				60	-----
Hogs (from weaning to 225 pounds)—					
Corn (15 hushels per head).....	bushels	675	945	810	-----
Tankage.....		2, 560	3, 640	340	-----
Soy beans.....	pounds			3, 250	-----
Mineral mixture.....				200	-----
Skim milk.....	cwt.	12	12	12	-----
Hens (100 head)—					
Corn.....	bushels	43	43	43	-----
Oats.....	do	38	38	38	-----
Wheat.....	do	40	40	40	-----
Bran.....	pounds	1, 200	1, 200	1, 200	-----
Shorts.....	do	1, 200	1, 200	1, 200	-----
Skim milk.....	cwt.	120	120	120	-----
Young chickens, (150 head)—					
Coru (10 bus. per 100 head).....	bushels	15	15	15	-----
Bran (220 lbs. per 100 head).....	pounds	330	330	330	-----
Shorts (220 lbs. per 100 head).....	do	330	330	330	-----
Skim milk (18 cwt. per 100 head).....	cwt.	27	27	27	-----
Summary for all stock—					
Corn.....	bushels	1, 100	1, 425	1, 270	-----
Oats.....	do	200	200	200	-----
Hay.....	tons	11	11	11	-----
Oil meal and cottonseed meal.....	pounds	1, 310	1, 310		-----
Soybeans.....	do			5, 400	-----
Bran.....	do	1, 530	1, 530	1, 530	-----
Shorts.....	do	1, 530	1, 530	1, 530	-----
Tankage.....	do	3, 160	4, 440	340	-----
Whole milk.....	cwt.	8	8	8	-----
Skim milk.....	do	179	179	179	-----

TABLE 4.—Standards of organization and management for successful farming on 80-acre farms under three, four, and five year crop rotation systems—Continued.

	Three-year cropping system.	Four-year cropping system.	Five-year cropping system.	Your own farm.
Probable products for sale:				
Corn..... bushels.....		75		
Wheat..... do.....	200	135	215	
Oats..... do.....	260	115		
Cows..... head.....	1	1	1	
Veal calves..... do.....	2	2	2	
Butterfat..... pounds.....	960	960	960	
Sows..... head.....	2	2	2	
Other hogs (225 pounds)..... do.....	39	57	48	
Hens..... do.....	30	30	30	
Broilers..... do.....	50	50	50	
Eggs..... dozens.....	900	900	900	
Products set aside for family use:				
Orchard, garden, etc..... acres.....	1	1	1	
Dairy products—butterfat equivalent..... pounds.....	100	100	100	
Hogs..... head.....	4	4	4	
Chickens..... do.....	50	50	50	
Eggs..... dozens.....	75	75	75	
Wood..... cords.....	3	3	3	
Items of expense:				
Feed—				
Corn..... bushels.....			75	
Oats..... do.....			200	
Old meal or cottonseed meal..... pounds.....	1,310	1,310		
Bran..... do.....	1,530	1,530	1,530	
Shorts..... do.....	1,530	1,530	1,530	
Tankage..... do.....	3,160	4,440	340	
Acid phosphate for mineral mixture..... do.....			100	
Salt..... barrels.....	1	1	1	
Labor—				
Hired or family..... months.....	3	3	3	
Fertilizer—				
(200 pounds per acre on wheat)..... pounds.....	2,200	1,500	2,400	
Seeds—				
Clover (1 bushel to 8 acres)..... bushels.....	2.75	1.88	1.5	
Timothy (1 bushel to 6 acres)..... do.....	3.67	2.5	2	
Soybeans (1 bushel to 1 acre)..... do.....			12	
Vaccination—				
(For hog cholera one treatment of each animal)..... head.....	51	71	61	
Machine work—				
Threshing wheat..... bushels.....	220	150	240	
Threshing oats..... do.....	495	337		
Threshing soybeans..... do.....			90	
Feed grinding..... do.....				
Baling..... do.....				
Repairs—				
House..... per cent of value.....	1	1	1	
Other buildings..... do.....	1	1	1	
Fences..... do.....				
Machinery..... do.....	2½	2½	2½	
Depreciation—				
House..... do.....	1½	1½	1½	
Other buildings..... do.....	2	2	2	
Machinery..... do.....	9	9	9	
Insurance..... do.....				
Taxes..... do.....				
Other expenses..... do.....				

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